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FINAL REPORT  
LAMBERT MINE PROJECT  
RICHLAND COUNTY, MONTANA

JANUARY, 1986

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FINAL REPORT  
LAMBERT MINE PROJECT  
RICHLAND COUNTY, MONTANA

JANUARY, 1986

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## LAMBERT MINE RECLAMATION

### OBJECTIVES

The objective of this project was to reclaim an abandoned coal mine in order to reduce hazards to people and livestock, recontour the affected areas to match the existing adjacent topography and restore the area to useful grazing land and eliminate the possibility of a surface fire igniting the underlying coal deposits.

### PROJECT LOCATION

The site is located approximately five (5) miles southwest of Lambert, Montana in the NW 1/4 NE 1/4 of Section 33, T22N, R55E in Richland County, Montana.

### SURFACE AND MINE DESCRIPTION

The site consists of approximately 4.5 acres of grassland located inside a fenced area of about 10 acres. The site is completely surrounded by grazing land. The fence around the site was erected by the landowner to protect livestock from being trapped in the mine voids by having the surface collapse under them. Numerous subsidences and fissures have developed in the original ground surface as a result of the overburden settling into the mine voids. The mined areas extend beyond the fenced limits of the project but there is no evidence of the ground surface subsiding outside the fenced area, possibly due to the greater overburden thickness.

### PROJECT PLANNING

A grant from the Office of Surface Mining and Enforcement – U.S. Department of the Interior – provided the funds for reclamation, administration, planning, and construction.





The Abandoned Mine Reclamation Bureau - Montana Department of State Lands - administered the grant.

L.C. Hanson Company designed and engineered the reclamation plans for this project. L.C. Hanson Company was also responsible for Contract administration, on-site inspection services, and acted as the Department of State Lands on-site representative.

Planning for this project was the result of site visits, aerial photography, ground photography, and the operator's mine map.

The project was undertaken in order to reduce hazards to livestock and people. Local borrow was used to backfill subsided areas. As the borrow areas were adjacent subsidences, the backfill was bid on a LUMP SUM basis. This was due to difficulty in cross sectioning the site and the Contractor not having to load the material, resulting in no method for an accurate determination of quantities.

Landowner fencing was maintained on the project. Although some work, closing mine openings, was outside the fencing, it was determined that this work would not require fencing. The Contractor was required to install a gate in the landowner's fence to gain access.

Topsoil was scarce on this site. The Contractor was encouraged to salvage as much topsoil as possible.

No unique reclamation procedures were needed at this site. The reclamation planning was similar to other projects designed by L.C. Hanson Company.

#### WORK DESCRIPTION

Rex Lahr Construction of Cut Bank, Montana was awarded the general contract for reclamation on May 13, 1985. The preconstruction conference was held on June 27, 1985.





Work began on June 27 with mobilization. An access gate was constructed at the east end of the site. The Contractor then removed and burned debris. Topsoil was salvaged and a mine shaft was closed.

Topsoil salvaging on the south half of the site was a difficult operation due to unstable ground conditions. Equipment of least weight was used in this area to salvage topsoil from on and around subsidences until unstable areas were isolated, collapsed into the mine voids, watered, and compacted. This condition resulted in slow progress until the construction area was stabilized and more productive, heavier machinery could be utilized.

On July 11 a temporary shutdown order was issued to the Contractor. At this time all backfilling and grading was completed and mine openings had been closed. Topsoil remained stockpiled at the site.

A Resume Work Order was issued on October 1, 1985. The Contractor spread topsoil from October 4 to October 10. During this time over one (1) foot of snowfall accumulated on the site. Topsoil replacement was slowed due to the Contractor having to remove the snow prior to placing the topsoil.

On October 24, 1985, Mitchell Brothers, Inc. of Glendive, Montana, mobilized to the site as the seeding and mulching subcontractor, Cenex of Lambert, spread fertilizer on the site on this date. The project was completed on October 25, 1985.

#### COST AND QUANTITY SUMMARY

Costs for the 4.6 acre site are shown in Table 1. Costs incidental to the earthwork totalled \$5,100.00 for mobilization, the access gate, and debris cleanup. Earthwork costs totalled \$11,969.55 which included subsidence backfill, closing the adit and shaft, and providing water for compaction. Revegetation costs totalled \$12,032.62 for salvaging



and replacing topsoil, seed, fertilizer, and mulch. Average total cost per acre calculates to \$6,326.59.

Overruns were encountered on five (5) bid items. Topsoil had an overrun of 8%. Water used for compaction was 120% over the estimated quantity. The disturbed area was 1 acre greater than estimated and required an increase in fertilizer, seed, and mulch.



Table 1 - COST AND QUANTITY SUMMARY

<u>ITEM</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>TOTAL COST</u>
Mobilization	1	\$ 4,200.00	\$ 4,200.00
Gate w/2 Single Panels	1	300.00	300.00
Debris Cleanup	1	600.00	600.00
Salvage and Replace Topsoil	2934.2 C.Y.	1.50	4,401.30
Subsidence Backfill	4800 C.Y.	1.00	4,800.00
Provide Water	114.1 MGAL	47.06	5,369.55
Close Adit	1	900.00	900.00
Close Shaft	1	900.00	900.00
Seed	121.4 LB	16.23	1,970.32
Fertilizer	700 LB	2.85	1,995.00
Mulch	9400 LB	0.39	<u>3,666.00</u>
TOTAL			\$29,102.17





## ENGINEER'S COMMENTS

The project was completed ahead of schedule and with a high degree of workmanship. The Contractor was very cooperative with the Contract requirements and minor changes which occurred during construction.

The weather conditions during the project created some minor problems. The hot, dry summer caused the access road to become very dusty. The dry soil was not able to resist the heavy traffic load. This disturbance caused one additional acre to be fertilized, seeded, and mulched. The dry weather also accounted for a 120% overrun in the water needed for compaction of backfill materials.

Approximately one (1) foot of snow fell during the replacing of the topsoil. Although this was welcome moisture for seedbed conditions, it did slow the work.

Some varieties of seed specified in the Contract were not available from northern suppliers. Seed from other regions was approved by the Department of State Lands. The snow and rain received in late September and early October created a good seedbed.



LAMBERT SLIDE LOG

1. 7-2-85 Lambert Mine 5 miles southwest of Lambert.
2. 7-2-85 South central construction area. New cave-in while ripping topsoil. Note project sign on fence post.
3. 7-2-85 SE 1/4 of construction area just left of 00 7 elevation (6' deep). New cave-in while ripping topsoil 10' deep, 15' long, 8' wide.
4. 7-2-85 Mine entrance in NE 1/4 of project after re-opening. Had Contractor remove 6' to 8' of dry fill MH add water when replaced.
5. 7-3-85 SW 1/4 of construction area, camera at west end. Looking SE - salvage topsoil from subsidence areas with dozer and backhoe.
6. 7-3-85 West end of south half of construction area. Backfilling adit with backhoe.
7. 7-5-85 SW 1/4 of construction area. Salvage topsoil on caved in area looking E-NE.
8. 7-5-85 NE 1/4 of construction area. Backfilling mine entrance trench looking east-northeast.
9. 7-5-85 SW 1/4 of construction area. New "cave-in" today. About 10'x15'x15' deep.
10. 7-8-85 SW 1/4 of construction area. Moving non-organic white "spoil" pile and leaving original topsoil in place.
11. 10-4-85 Sign and gate closure assembly.
12. 10-4-85 Topsoil placed on north side.
13. 10-4-85 Topsoil placed on north side.
14. 10-4-85 Topsoil placed on south side (before snow).
15. 10-9-85 Topsoil placing on south side (after snow-fall).
16. 10-9-85 " " " " "
17. 10-9-85 " " " " "
18. 10-9-85 " " " " "
19. 10-9-85 " " " " "
20. 10-9-85 " " " " "







21.	10-9-85	"        "        "        "        "
22.	10-24-85	Disc used for working fertilizer into soil.
23.	10-24-85	Discing fertilizer into soil.
24.	10-24-85	Grass drill.
25.	10-24-85	Grass drill.
26.	10-24-85	Discing and seeding.
27.	10-24-85	Seed on hard ground showing approximate 1" spacing of seeds.
28.	10-24-85	Seeding completed.
29.	10-24-85	Straw for mulch.
30.	10-24-85	Mechanical mulcher.
31.	10-24-85	Mechanical mulcher in operation.
32.	10-24-85	"        "        "        "        "
33.	10-24-85	"        "        "        "        "
34.	10-24-85	Mulch tucker.
35.	10-24-85	Tucker in operation.
36.	10-25-85	Completed project.
37.	10-25-85	Completed project.
38.	10-25-85	Completed project.
39.	10-25-85	Surface settling discovered during seeding.
40.	10-25-85	Rattlesnake on site (common sight).











